

## 4.5 FISH RESOURCES

### 4.5.1 Impacts of the Proposed Master Plan

An isolated section of an intermittent, non-fish-bearing (King County Class 3) stream may be present on the project site (refer to Section 3.5 of this Draft EIS). The stream is in the North Fork Hamm Creek drainage, near the extreme eastern border of the project site, near the south boundary. The project site does not adjoin any lakes or Puget Sound, but occupies headwater areas of the Salmon Creek and Hamm Creek (Duwamish River) drainages. As such, no fish habitat is present, nor are any fish.

Potential fish- or fish-habitat-related impacts would occur only in areas somewhat removed from and downslope of the site. Impacts would be based on the quantity, quality, and timing of the surface water and, to a lesser extent, the groundwater, originating from the site as influenced by its condition and development. A Biological Evaluation (BE) has been prepared to address Endangered Species Act requirements. The BA is included in this Draft as Appendix H.

#### Construction

Construction impacts to fish and fish habitat would be related to the amount and type of earth exposed during construction, the effectiveness of temporary erosion and sedimentation control measures, and the extent and effectiveness of flow control measures from temporary ponds. These would affect the amount, quality, and timing of potentially silt-laden water reaching downstream areas of fish habitat.

Existing storm runoff surface flows originating on-site are normally kept separate from flows in Salmon Creek. Currently, storm runoff flows into Lake Garrett, and water from Lake Garrett is pumped to an outfall draining directly to Puget Sound, which is near but distinct from the mouth of Salmon Creek. During high flow events and/or equipment failure, some stormwater overflows from this storm drainage system are reportedly discharged to the creek (Barber, pers. comm., 11 February 2003). Flows from the portions of the site draining to the Duwamish River would, however, flow through fish-bearing portions of the North Fork of Hamm Creek en route.

The North Fork of Hamm Creek would be more vulnerable to construction-related impacts than Salmon Creek since flows from on-site do not normally enter Salmon Creek but do enter the North Fork of Hamm Creek. In addition, a number of ponds and wetlands occur downstream of the project site in the Salmon Creek Basin. These ponds and wetlands serve to improve water quality and attenuate flow fluctuations before runoff from on-site can reach fish habitat in Puget Sound. No ponds or wetlands occur along the drainage route leading to the North Fork of Hamm Creek, which is documented as supporting salmonid fish in its lower reaches.

The proposed project would divert the flow from an approximately 11-acre on-site area away from the Lake Garrett Basin (Salmon Creek Basin) and into the North Fork of Hamm Creek (Duwamish Basin). This diversion would represent an approximately one percent increase in the size of the overall Hamm Creek Basin.

The Proposed Master Plan calls for stripping and exposing approximately 40 percent of the project site, making it vulnerable to erosion and resultant downstream water quality impacts. However, the Proposed Master Plan would also implement effective temporary sedimentation

and erosion control and temporary flow control BMPs during the construction process. As a result, downstream construction-related impacts to fish and/or fish habitat are expected to be less than significant.

## Operation

Following water quality treatment and flow attenuation due to detention, storm runoff from on-site in the North Fork Mann Creek drainage may either be discharged to near the head of a small on-site ravine, as it is presently, or it may be piped directly to an existing piped drainage system. As described previously, the head of the small ravine may contain a short, Class 3 stream section and a Class 3 wetland. If the existing stormwater discharge location to the ravine sideslope is maintained, it could result in some continued erosion, but presumably less than would occur under existing conditions (the No Action Alternative) since the Proposed Master Plan would attenuate storm runoff flow fluctuations by providing detention. If piped directly to the existing piped drainage system, some potential erosion may be avoided and the Class 3 stream section and Class 3 wetland area, if present in the upper ravine area, would be bypassed. Some stormwater from off-site to the south also enters the ravine, which may be sufficient to maintain the stream section and wetland area, if present.

The Proposed Master Plan would significantly improve water quality and attenuate runoff flow fluctuations compared with existing site conditions and the No Action Alternative.

The Proposed Master Plan includes design elements and BMPs that differ from the requirements of the current King County Surface Water Design Manual (KCSWDM). It is intended that these design elements and BMPs would be consistent with the goals and objectives of the *King County Low Impact Development and Built Green Demonstration Project Ordinance #14662*. A listing of drainage requirement adjustments likely to be requested and their evaluation with regard to potential fish and fish habitat impacts follows:

1. *Requested adjustment to KCSWDM Core Requirement #1 (Section 1.2.1): Discharge at the Natural Location.*

Development under the Proposed Master Plan would divert storm runoff flows from an 11-acre area of the site away from the Salmon Creek Basin and into the North Fork Hamm Creek Basin, increasing the on-site area in the Hamm Creek Basin from approximately 43 to 54 acres or from approximately three percent to four percent of the overall basin. The on-site area, ostensibly in the Salmon Creek basin, would correspondingly decrease from approximately 47 to 36 acres, or from approximately four percent to three percent of the entire basin. Despite the contrived and piped condition of the North Fork of Hamm Creek and its alignment, the stream has been reported to be used by several species of salmonid fish. (juvenile coho and cutthroat in the North Fork under the power lines extending up to SR 509 Schneider, pers. comm., 20 February 2003; adult coho and chinook salmon, and cutthroat and steelhead trout use the North Fork, Beal, pers. comm., 20 February 2003).

The Hamm Creek Basin is more sensitive to on-site activities with respect to potential fish and fish habitat impacts than the Salmon Creek Basin. Surface flows from the portions of the project site, which are nominally in the Salmon Creek Basin, do not normally reach Salmon Creek (they are bypassed to Puget Sound). However, runoff from portions of the project site in the Hamm Creek Basin flow through sections of the North Fork of Hamm

Creek that are used by fish. Therefore, runoff water draining to Hamm Creek from the project site could more directly affect fish before reaching Puget Sound.

The proposal to divert on-site flows to the North Fork Hamm Creek Basin, ostensibly from the Salmon Creek Basin, has the potential to affect salmonid fish and their habitat unless effective safeguards and controls are implemented. However, the proposed diversion of flows would not result in adverse impacts to fish or fish habitat downstream of the project site for the following reasons:

- A. The increase in drainage area to the overall Hamm Creek Basin would be relatively minor, an increase of approximately one percent.
  - B. No flow controls on runoff originating on-site are presently in place. The Proposed Master Plan incorporates flow controls which would prevent any increases in the duration of flows higher than half of the existing two-year flow as calculated at the site boundary. Flows below half of the two-year rate are generally considered to be relatively non-erosive. Changes in flow would be further attenuated proceeding downstream along the stream channel away from the site as flow from an increasing proportion of the overall basin is assimilated.
  - C. No water quality treatment for runoff originating on-site is presently provided. The Proposed Master Plan would provide a network of biofiltration swales and opportunities for interflow and infiltration on-site. Interflow, which is shallow, often short-distance groundwater flow, would improve water quality. Through the provision of these water quality protection and improvement measures, it is anticipated that the quality of the water reaching downstream stream sections from the site would be of adequate quality for beneficial use by salmonid fish.
  - D. Given that the North Fork is a relatively small creek used by adult salmon, a minor increase in non-peak flow rates of high-quality water during periods of upstream adult migration may be of benefit in facilitating upstream fish passage.
2. *Requested adjustment to KCSWDM Core Requirement #3 (Section 1.2.3): Flow Control, Flow Control Implementation Requirements (Section 1.2.3.2).*

Under the Proposed Master Plan, redevelopment would be based on hydrologic analysis for flow control and water quality facilities that allow for a reduction in effective impervious area (EIA) based on low impact development (LID) BMPs. Incorporation of BMPs is expected to provide a level of water quality benefit and water quantity control comparable to that provided by the conventional standards required by the KCSWDM and, therefore, an improvement over existing conditions.

3. *Requested adjustment to KCSWDM Core Requirement #6 (Section 1.2.6): Maintenance and Operations.*

King County may be requested to assume maintenance responsibilities for specific facilities. To the extent that the maintenance would be accomplished in a timely and competent manner, fish and fish habitat downstream of the project site would not be affected.

4. *Requested adjustment to KCSWDM Core Requirement #8 (Section 1.2.8): Water Quality.*

It may be requested that the proposed low impact BMPs be accepted as adequate water quality treatment for the project site. Incorporation of BMPs is expected to provide a level of water quality benefit comparable to the conventional standards required by the KCSWDM. Therefore, an improvement would occur relative to existing conditions. Specifically, the roadside bio-filtration swale BMP is expected to provide on-site water quality treatment equivalent to the KCSWDM Basin Water Quality Treatment Standard (Goldsmith & Associates 2003). No adverse impacts to fish or fish habitat would result.

5. Some additional adjustments for water quality and quantity control facility features are anticipated. These would primarily be features which would allow an “Integrated Pond” look and feel, and would not adversely affect the water quality treatment or flow control functioning of these facilities. Fish and fish habitat downstream would not be adversely affected by these modifications.

Any fisheries-related impacts due to on-site activities would not occur on-site, but rather in off-site stream sections, the lower Duwamish River, or Puget Sound. These are all areas somewhat to quite considerably removed from the project site. Since no fish or fish habitat are present on the project site, the above-described construction and operation impacts may also be considered to be indirect impacts. The Proposed Master Plan is not expected to result in significant adverse impacts to fish or fish habitat.

## Cumulative Impacts

The Salmon Creek and Hamm Creek Basins are already highly developed with little land remaining for additional development. If and when land in these basins is re-developed, it will be subject to more stringent and effective water quality and quantity control measures, such as those included in the current KCSWDM. Significant improvements in water quality and runoff flow regime characteristics would be anticipated as such re-development occurs. Due primarily to topographic constraints, it is not anticipated that flow from substantial additional areas would be diverted between drainage basins in the project vicinity.

### 4.5.2 Impacts of the Alternatives

#### Design Alternative Master Plan

##### **Construction**

Similar to the Proposed Master Plan, construction impacts to fish and fish habitat would be affected by the amount and type of earth exposed during construction, the effectiveness of temporary erosion and sedimentation control measures, and the extent and effectiveness of flow control measures from temporary ponds. These would affect the amount, quality, and timing of potentially silt-laden water reaching downstream areas of fish habitat. Under the Design Alternative Master Plan, redevelopment would comply with currently applicable King County design standards for stormwater control.

Unlike the Proposed Master Plan, which includes a proposal to divert the flow from an approximately 11-acre area away from the Lake Garrett Basin (Salmon Creek Basin) and into

the North Fork of Hamm Creek (Duwamish Basin), the Design Alternative Master Plan would comply with the current KCSWDM Core Requirement #3 (Section 1.2.3) to discharge stormwater at the natural location. Under the Design Alternative Master Plan, the North Fork of Hamm Creek would only receive runoff from its original and current drainage basin.

Grading quantities would be greater than for the Proposed Master Plan. Similar to the Proposed Master Plan, the Design Alternative Master Plan would result in stripping and exposing approximately 40 percent of the project site, making it vulnerable to erosion and resultant downstream water quality impacts. Temporary sedimentation and erosion control and temporary flow control BMPs would be implemented during construction and downstream construction impacts to fish and/or fish habitat would be expected to be minor.

### ***Operation***

Redevelopment under the Design Alternative Master Plan would comply with currently applicable King County design standards for stormwater control provided by the current version of the KCSWDM. Similar to the Proposed Master Plan, redevelopment would improve water quality and attenuate runoff flow fluctuations compared with the existing site conditions (the No Action Alternative). The storm drainage system serving the existing development includes essentially no water quality or quantity controls. Redevelopment under the Design Alternative Master Plan is not expected to result in significant adverse impacts to fish or fish habitat.

### ***Cumulative Impacts***

Cumulative impacts would be the same as those discussed under the Proposed Master Plan.

### ***No Action Alternative***

Under the No Action Alternative, redevelopment would not occur. Relatively minor and slowly evolving site changes affecting stormwater runoff could occur. Stormwater runoff would continue to flow from the site into both the Salmon Creek and Hamm Creek Basins in a relatively uncontrolled and degraded state to the detriment of fish and fish habitat downstream. The benefits to downstream fish and fish habitat of improved water quality and water quantity controls, would not occur.

### ***4.5.3 Mitigation Measures***

Mitigation measures which have been incorporated into the Proposed Master Plan include BMPs to improve and protect water quality and provide quantity controls. Related specifically to storm runoff water, these include a roadside biofiltration BMP and flow controls to meet design criteria. The mitigation measures provided will result in material improvements to water quality and quantity control parameters, to the benefit of fish and their habitat, downstream of the site in the lower Duwamish Basin and Puget Sound.

Mitigation measures which have been incorporated into the Design Alternative Master Plan include BMPs to improve and protect water quality and provide quantity controls as required by the current KCSWDM. The effectiveness of these mitigation measures is expected to be comparable to the mitigation measures discussed under the Proposed Master Plan, and will

similarly result in material improvements to water quality and quantity control parameters, to the benefit of fish and their habitat, downstream of the site compared to existing conditions.

#### 4.5.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to fish resources are anticipated.